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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/788,832

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EXAMINER

MATZEK, MATTHEW D

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

03/05/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/788,832	<b>Applicant(s)</b> CHOI, KYUNG-JU	
	<b>Examiner</b> MATTHEW D. MATZEK	<b>Art Unit</b> 1794	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 22-29 and 33-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-29 and 33-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/3/2007 has been entered.

***Response to Amendment***

2. The amendment dated 12/3/2007 has been fully considered and entered into the Record. The amended claims, 22, 29 and 33, contain no new matter. The previous 112 2nd paragraph rejection of claims 22-29 and 33-44 has been overcome by the amendment. Claims 22-29 and 33-44 are currently active.

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 22-26, 33, 38, 39, 41, 42 and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Healey (US 2002/0187701).

Healey discloses a filter media that includes a middle-filtering layer formed from at least one meltblown layer. (Abstract) Figure 2 illustrates a filtering component 14 formed from three meltblown layers [0029]. The meltblown layers have different gradients of basis weight (claim 23). It is the Examiner's interpretation that such gradients provide for gradients in porosity. The new claim limitations of varied fiber sizes and the media's resultant permeability and porosity within each layered mat portion are provided for in

Healey [0021 and 0028]. In particular, Healey teaches fiber size distributions within the claimed ranges, the first outer layer and the filter layer would necessarily possess differing permeabilities and porosities in order for the filter layer to separate out particles that are not captured in the first outer layer [0027-0029]. The fibers and filaments of Healey are attenuated by a gas stream [0034] and deposited on to a collecting surface to form a web of randomly dispersed fibers. The random disbursement would serve the same function as the process of claim 25. The individual layers may be textured to facilitate bonding to adjacent layers [0010], which results in the claimed interspersed manner. As shown in the Figures the layers of the filter media may be combined in a successive manner.

4. Claims 22-24, 26-29, 33-39, 41, 42 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Airflo (EP 0 960 645 A2).

The EP '645 reference relates to a disposable vacuum cleaner bag composition. The reference discloses a three-layer vacuum cleaner bag construction (refer to Figure 4) that comprises a filtration grade meltblown layer with fibers with diameters in the range of 1-15 micrometers and air permeability of 100-1500 L/(m<sup>2</sup> x s) and a high bulk meltblown layer with fibers with diameters in the range of 5-20 micrometers and an air permeability of 300-8000 L/(m<sup>2</sup> x s) (Refer to Table 1). The range of diameters for the fibers within each layer anticipates the new claim limitations of varied fiber sizes and the media's resultant permeability and porosity within each layered mat portion. With regards to the mode the meltblown material is produced, refer to [0054] in which the reference teaches attenuating the filaments upon formation. As shown in the Figures the layers of the filter

media may be combined in a successive manner and would intersperse when adjacent layers are bonded together.

5. Claims 22-27, 33, 34, 36, 38-41 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Healey (WO 01/32292 A1).

Healey discloses a filter media comprising a synthetic micro fibers polymer fine fiber wherein the diameter of the fibers is between about 0.8 to about 1.5 microns. (Abstract) The range of diameters for the fibers within each layer anticipates the new claim limitations of varied fiber sizes and the media's resultant permeability and porosity within each layered mat portion. In Figure 2, the reference discloses a filter media composite 10 that includes a coarse fiber layer 16 and a meltblown polymer fine fiber web 14, which is mechanically entwined with coarse fiber layer 16. (Refer to page 22, lines 24-30) The reference teaches that the coarse synthetic micro fiber, e.g. meltblown, material which serves as a pre-filter has a fiber diameter between about 5 to about 20 microns. (page 5, lines 1-5) In Figure 3, the reference teaches additional layers. The meltblown fibers are attenuated (page 31) and deposited on to a collecting surface to form a web of randomly dispersed fibers (page 9). The random disbursement would serve the same function as the process of claim 25. It is the Examiner's interpretation that the mechanically entwined fibers read on the presently claimed entangled portions. As shown in the Figures the layers of the filter media may be combined in a successive manner and would intersperse when adjacent layers are bonded together (page 5).

***Claim Rejections - 35 USC § 103***

6. Claims 25, 40 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Airflo (EP 0 960 645 A2) in view of Healey (WO 01/32292 A1). The EP '645 reference is silent to the entangling of the fibers.

a. Healey provides a similar fibrous filter media and teaches mechanically entwining the fibers to bond the layers. (Page 22, lines 24-30).

b. Since '645 and Healey are from the same field of endeavor (i.e. filter media), the purpose disclosed by Healey would have been recognized in the pertinent art of '645.

c. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the filter media and provide with it with mechanical entwining with the motivation of bonding the layers without the use of adhesives.

***Response to Arguments***

7. Applicant's arguments filed 12/3/2007 have been fully considered but they are not persuasive.

8. Applicant argues that the applied references fail to provide for the newly claimed varied fiber size distribution or varied permeability within a single layer. Examiner has clearly demonstrated that the applied references do in fact provide the claimed limitations in the rejection section of this Office Action.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571.272.1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/  
Examiner, Art Unit 1794

/Terrel Morris/  
Supervisory Patent Examiner  
Group Art Unit 1794